PATENT
109A-2948 CPA

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Art Unit: 3653
YONEZO FURUYA	Examiner: J. Shapiro
Serial No: 09/528,282	
Filed: March 17, 2000	
For: COIN INSPECTION METHOD AND APPARATUS THEREFOR	

APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
Mail Stop: Appeal Brief – Patents

Dear Sir:

This is an appeal from the final rejection of the Examiner in Art Unit 3653 dated July 1, 2005, rejecting claims 1-5 and 16-27 of the application identified here and above.

REAL PARTY IN INTEREST:

The party named in the caption of the Brief is the inventor and the inventor has assigned his right, title and interest to Kabushiki Kaisha Nippon Conlux, 2-2, Uchisaiwaicho 2-chome, Chiyoda-ku, Tokyo 100-0011, Japan. Such assignment was recorded at the United States Patent and Trademark Office at reel 010699, frame 0328 on March 17, 2000.

RELATED APPEALS AND INTERFERENCES: None

STATUS OF THE CLAIMS:

A. Rejection of the Specification and Claims on Non-Reference Grounds:

1. None.

B. Rejection of the Claims on Reference Grounds:

1. Claims 1-5, 16, 17, 19-23 and 25 are rejected under 35 U.S.C. 102 as being anticipated by the cited art. In support of the Examiner's position, the Examiner states:

"Claims 1-5, 16-17, 19-23 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Strauts (US 5,630,494)."

2. Claims 1-5, 16, 17, 19-23 and 25 are rejected under 35 U.S.C. 102 as being anticipated by the cited art. In support of the Examiner's position, the Examiner states:

"Claims 1-5, 16-17, 19-23 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Iwamoto et al. (US 5,630,494) in view of Nagaraj (US 6,259,316)".

3. Claims 18, 24 and 27 are rejected under 35 U.S.C. 103 as being obvious over the cited art. In support of the Examiner's position, the Examiner states:

"Claims 18, 24 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strauts in view of Fougere (US 3,870,137)".

4. Claims 10, 15 and 26 are rejected under 35 U.S.C. 103 as being obvious over the cited art. In support of the Examiner's position, the Examiner states:

"Claims 10, 15 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strauts in view of Laskowski et al. (US 6,101,266)".

STATUS OF THE AMENDMENTS:

Appellant has filed no amendment in response to the Final Office Action and has instead filed a Notice of Appeal. The claims are as they appear in the attached Appendix.

SUMMARY OF THE CLAIMED SUBJECT MATTER:

The present invention relates to a method and apparatus of inspecting a coin thrown into a machine (page 3, line 2). In the method and apparatus, an exciting coil is arranged in the vicinity of one side of the coin passageway which is inclined at a predetermined angle so that the magnetic polls of the exciting coil face the coin passage (page 5, lines 21-24). Two receiving coils having substantially identical characteristics are provided in the vicinity of one side of the

coin passage (page 6, lines 8-12). The two receiving coils are electromagnetically connected with the exciting coil (page 6, lines 24-26). The two receiving coils are further electrically connected to a differential amplifier so that the differential amplifier receives a differential input from the receiving coils (page 9, lines 6-9). The exciting coil is excited by an oscillator at a frequency and when a coin passes through the electromagnetic field produced by the excited coil, a reactive magnetic field caused by eddy currents induced on a surface of the thrown coin is detected by the two receiving coils and electromotive force signals representing the influence of this reactive magnetic field are applied to the differential inputs of a differential amplifier and are utilized to determine a surface pattern of the thrown coin (page 7, line 1-page 8, line 8 and page 8, lines 16-23). The amplitude, frequency and phase of the oscillation voltage of the exciting coil is also affected by the thrown coin as it passes through the coin passage and the authenticity of the thrown coin is determined or discriminated based on the combination of the output of the differential amplifier which indicates the surface pattern of the thrown coin and at least one of amplitude, frequency and phase of the oscillation voltage of the exciting coil (page 7, lines 8-18 and page 9, lines 2-22).

REFERENCES CITED:

A. Strauts, US Patent No. 5,630,494.

Appellant has carefully reviewed Strauts and respectfully submits that it discloses a coin discriminating sensor and coin handling system which first includes a sorting head 12 which mechanically sorts the coins by diameter and thickness and includes six ejection recesses and six proximity sensors S_1-S_6. The ejection recesses essentially sort the alleged coins provided into the sorting head into coins of the thickness and diameter of pennies, nickels, dimes, quarters, half-dollars and dollars (see col. 7, lines 36-48). The proximity sensors S_1-S_6 are provided near the six exit channels and perform the next step in the discrimination process which is the detection of the coin material (see col. 8, lines 26-28). The sensors S_1-S_6 are eddy current sensors which include an excitation coils 212 for generating and alternating magnetic field and proximal and distal detector coils 222 and 224 disposed above the coil 214 (see col. 12). As the coin penetrates the magnetic field generated by the excitation coil 212 the strength of the eddy currents flowing into the coin 214 is dependent on the material composition of the coin, particularly the electrical resistance (see col. 12, lines 48-55). The eddy currents produce a

magnetic field which induces a voltage in the proximal and distal coils 222 and 224 (see col. 12, lines 58-62). In another embodiment, a phase difference between the voltage and the current is detected and this phase difference is decreased by the presence of the coin. As a result, in this second embodiment of the sensor, the amount of reduction in the phase difference is proportional to the electrical and mechanical characteristics of the coins and thus the composition of the coin and thereby an analysis of the phase difference produces an accurate assessment of the composition of the coin (see col. 14, lines 65-col. 15, line 3). Accordingly, from the above it is clear that the sensor is only meant to detect the composition of the coin and does not make an analysis of the eddy currents to determine the surface pattern on the coin.

B. Iwamoto et al., US Patent No. 5,458,225

Appellant has carefully reviewed Iwamoto et al. and respectfully submits that in Iwamoto et al. as shown in Figs. 10 and 13A and described in the specification at col. 13, et seq., a capacitor 21 is connected to the transmission coil 11 to constitute a resonance circuit and a capacitor 22 is connected to the reception coil 12 to constitute a resonance circuit. A high frequency signal is applied to the coil 11 by an oscillator 24 to generate an alternating magnetic field. An electromotive force is generated in the reception coil 12 by the magnetic field. As the coin C passes the reception coil 12, eddy current is generated in the coin C as well as electromotive force being generated in the reception coil 12. The signal from the coil 12 is amplified by the buffer amplifier 25 and further supplied to a sampling hold circuit 26 which functions equivalent to a phase detection circuit. With this arrangement, when the coil is inserted and passes between the transmission and reception coils 11 and 12, the eddy current is generated and new magnetic field is generated by this eddy current. The output from the reception coil 12 becomes maximum when the front periphery of the coin passes the center of the reception coil 12 and when the rear periphery of the coin passes the center of the reception coil 12. As a result, the output waveform of the sampling hold circuit 26 becomes a double peak which is supplied to a determining circuit 31 as a thickness determination signal. The circuit 31 compares the two signals from the leading and trailing edges of the coin passing the center of the coil 12 with reference signals having specific numeric arrangement corresponding to several denominations of coins. Also, in Figs. 34-44, it discloses a coin discriminating apparatus for discriminating the thickness, material, diameter and the like of a coin (see the abstract). The coin discrimination is made based upon all three parameters, namely the separately and independently

detected thickness, material and diameter of the coin. In particular, the coin discriminating apparatus utilizes a transmission coil 11 and three reception coils 12_1, 12_2 and 12_3 and the diameter, the conductivity and the thickness of the coin are based on the peak values and the bottom values of the electromagnetic forces induced in the reception coils 12_1, 12_2 and 12_3 when the coin passes by the transmission coil 11 and the reception coils 12_1, 12_2 and 12_3 . Appellant respectfully submits that this is the only determination made in Iwamoto et al. and there is no analysis or processing of any eddy current to determine the surface pattern of the coin.

C. Nagaraj, US Patent No. 6,259,316

Nagaraj discloses a low voltage buffer amplifier for use in conjunction with high speed sample and hold circuits (see Field of the Invention). Such sample and hold circuits typically are used in modern communication and data storage integrated circuits.

D. Fougere, US Patent No. 3,870,137

Appellant has reviewed Fougere and respectfully submits that it discloses a method and apparatus for coin selection utilizing inductive sensors. In particular, Fougere discloses discriminating the coin utilizing at least two different frequencies, a high and a low one, and at least two separate coils. The discrimination is made by determining the shift in the frequency of the at least two different frequencies which are applied to the coils and there is no excitation coil which is electromagnetically coupled to the coils utilized. The coin is discriminated by determining how much frequency shift there is at the high frequency and how much frequency shift occurs at the low frequency.

E. Laskowski et al., US Patent No. 6,101,266

Appellant has carefully reviewed Laskowski et al. and respectfully submits that it discloses an apparatus and method of determining conditions of bank notes and not coins. The bank notes are scanned utilizing LED's and photocells and there is no coils utilized, no eddy currents and no electromagnetic interaction between the coils. While it may disclose a statistical analysis, the statistical analysis is based upon the kinds of variations one would find in bank notes and not coins.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL:

A. Claims 1-5, 16, 17, 19-23 and 25 are rejected by the Examiner as being anticipated by Strauts and it is Appellant's position that Strauts does not show each and every element of Appellant's invention.

B. Claims 1-5, 16, 17, 19-23 and 25 are rejected under 35 USC 102 as being anticipated by Iwamoto et al. in view of Nagaraj. Appellant respectfully submits and assumes that this was meant as a rejection under 35 USC 103 as being obvious over Iwamoto et al. in view of Nagaraj and therefore it is Appellant's position that not only is the combination suggested by the Examiner not Appellant's invention, but also the combination suggested by the Examiner would not be obvious to one of ordinary skill in the art.

C. Claims 18, 24 and 27 are rejected under 35 USC 103 as being obvious over Strauts in view of Fougere and it is the Appellant's position that not only does the combination suggested by the Examiner not show each and every element of Appellant's invention but also the combination suggested by the Examiner would not have been obvious to one of ordinary skill in the art.

D. Claims 10, 15 and 26 are rejected under 35 USC 103 as being obvious over Strauts in view of Laskowski et al. and it is the Appellant's position that not only is the combination suggested by the Examiner not Appellant's invention but also the combination suggested by the Examiner would not be suggested to one of ordinary skill in the art.

ARGUMENT:

A. As is discussed above, Appellant respectfully submits that Strauts relates to a coin sorting apparatus which is quite different from Appellant's invention. In particular, in the coin sorting apparatus of Strauts, the discrimination of the coin is accomplished in two stages. In the first stage, the coin is mechanically discriminated by the sorting head 12 by diameter and thickness. Then, as is discussed at col. 8, lines 25-28, col. 12, lines 52-55 and col. 14, lines 65-col. 15, line 3, the sensors S_1-S_6 merely detect that what has been mechanically sorted by the sorting head is in fact made from the right material by sensing the material of the coin after it is sorted. If the material proves to be the wrong one, the coin is rejected from the device. In addition, Appellant respectfully submits that while this determination as to the material of the coin is made based on eddy currents, there is no analysis based upon the eddy current to

determine the surface pattern of the coin. Still further, Appellant respectfully submits that there is no differential amplifier utilized in Strauts and the discrimination of the authenticity of the coin is not based upon an output of the differential amplifier and at least one of the amplitude, frequency and phase of the oscillation voltage of the exciting coil.

In addition and more specifically, Appellant respectfully submits that the first detecting means 250 merely detects the eddy current and the output thereof is sent to an ordinary amplifier means 256 and not a differential amplifier. Still further, Appellant respectfully submits that amplifier 256 is in fact a mere amplifier and not part of a detecting means. Also, Appellant respectfully submits that the detecting means comprises a single element consisting of excitation coil 212 and detection coils 222 and 224 and the coils 224 and 222 together with the excitation coil 212 are merely for the purpose of measuring the eddy current and are not for the purpose of measuring "an electromotive force influenced by a reactive magnetic field caused by the eddy current induced on the surface of the thrown coin." In addition, Appellant respectfully submits that the discriminating means referred to by the Examiner only relates to discrimination of the type of material and only relates to the detection of the material of the coins by means of detecting the eddy current.

In view of the above, therefore, Appellant respectfully submits that Strauts does not disclose each and every element of claims 1-5, 16, 17, 19-23 and 25.

B. In Iwamoto et al. as shown in Figs. 10 and 13A and described in the specification at col. 13, et seq., a capacitor 21 is connected to the transmission coil 11 to constitute a resonance circuit and a capacitor 22 is connected to the reception coil 12 to constitute a resonance circuit. A high frequency signal is applied to the coil 11 by an oscillator 24 to generate an alternating magnetic field. An electromotive force is generated in the reception coil 12 by the magnetic field. As the coin C passes the reception coil 12, eddy current is generated in the coin C as well as electromotive force being generated in the reception coil 12. The signal from the coil 12 is amplified by the buffer amplifier 25 and further supplied to a sampling hold circuit 26 which functions equivalent to a phase detection circuit. With this arrangement, when the coil is inserted and passes between the transmission and reception coils 11 and 12, the eddy current is generated and new magnetic field is generated by this eddy current. The output from the reception coil 12 becomes maximum when the front periphery of the coin passes the center of the reception coil 12 and when the rear periphery of the coin passes the center of the reception coil

12. As a result, the output waveform of the sampling hold circuit 26 becomes a double peak which is supplied to a determining circuit 31 as a thickness determination signal. The circuit 31 compares the two signals from the leading and trailing edges of the coin passing the center of the coil 12 with reference signals having specific numeric arrangement corresponding to several denominations of coins.

From the above analysis, Appellant respectfully submits that Iwamoto et al. does not use a differential amplifier to determine a surface pattern of the thrown coin and particularly does not determine the authenticity of the thrown coin based on the combination of an output of the differential amplifier and at least one of amplitude, frequency and phase of the oscillation voltage of the exciting coil.

Still further, Appellant respectfully submits that in other embodiments such as shown in Figs. 34–44, the coin discrimination apparatus of Iwamoto et al. uses a transmission coil 11 and three reception coils 12_1, 12_2, 12_3. With this construction, the diameter, conductivity and thickness of the coin are determined based upon the peak values and bottom values of the electromotive forces induced in the reception coils when a coin passes through the transmission coil and each of the reception coils. Clearly, such a construction also does not disclose determining the surface pattern of thrown coin based on the output of a differential amplifier.

Appellant has further reviewed Nagaraj and Nagaraj was filed in the U.S. Patent Office on May 12, 1999. Appellant's application claims a priority date of March 17, 1999, a date before the filing date of Nagaraj. However, Appellant further recognizes that Nagaraj was based upon a provisional application filed May 29, 1998, but respectfully submits that it is unclear from the record whether the provisional application disclosed all that is in the published or issued patent to Nagaraj and was filed less than one year before the priority date of Appellant's application. Therefore, Nagaraj may not receive the filing date of May 29, 1998 and may not be a proper reference against Appellant's application.

Still further and as was discussed above, Appellant respectfully submits that Nagaraj may teach the utilization of buffer amplifier which includes differential amplifiers, but the invention of Nagaraj is directed toward communications and data storage circuits and not toward coin discriminating apparatuses. Therefore, Appellant respectfully submits that not only is this not from the same art as Iwamoto et al. but also it is not an analogous art. As a result, Appellant respectfully submits that one of ordinary skill in the art would not look to Nagaraj.

In view of the above, therefore, Appellant respectfully submits that not only is the combination suggested by the Examiner not Appellant's invention but also the combination suggested by the Examiner would not have been suggested to one of ordinary skill in the art.

C. In Appellant's arguments concerning claims 18, 24 and 27, Appellant does not want to rehash the arguments made above concerning Strauts and instead would like to incorporate them by reference. As for Fougere, Appellant respectfully submits that the operation of Fougere is entirely different than Strauts and as a result, one of ordinary skill in the art would not look to Fougere to make a combination with Strauts. In particular, Fougere discloses a two frequency device utilizing two sets of coils, namely 70 and 72 to which a relatively low frequency signal is applied and coils 74, 76 and 78 to which a relatively high frequency signal is applied. Utilizing these inductors, a shift in the frequency of both the high and low signals are utilized to detect or discriminate the value of the coin. In Fougere, there is no exciting coil and no eddy currents induced which are sensed by any of the coils. In contrast thereto, Strauts requires an excitation coil and senses the eddy current to determine the composition or material of the coin. In view of the above, Appellant respectfully submits that while Straus and Fougere may relate to common devices, the operation of each is so different that one of ordinary skill in the art would not look to the teachings of Fougere to combine them with Strauts.

In view of the above, therefore, Appellant respectfully submits that not only is the combination suggested by the Examiner not Appellant's invention but also the combination suggested by the Examiner is not suggested to one of ordinary skill in the art.

D. As to the rejection of claims 10, 15 and 16, the primary reference is again Strauts and to reduce the redundancy of the arguments, Appellant would like to incorporate Appellant's comments above concerning Stratus and Appellant's invention. As to Laskowski et al., as was discussed in prior sections of this Appeal Brief, Laskowski et al. relates to an apparatus and method of determining the conditions of bank notes which utilizes LED's and photocells and has nothing to do with the sensing or determination of the values of a coin. Still further, Appellant respectfully submits that while Laskowski et al. may include some statistical analysis to be utilized with a bank note which is made from paper, Appellant respectfully submits that this does not suggest to one of ordinary skill in the art that one would utilize a similar statistical analysis when discriminating the value of a coin made from metal and particularly when determining or discriminating the value of the coin based at least in part upon the surface pattern.

In view of the above, therefore, Appellant respectfully submits that not only is the combination suggested by the Examiner not Appellant's invention but also the combination suggested by the Examiner would not be suggested to one of ordinary skill in the art.

CONCLUSION:

The finally rejected claims 1-5 and 16-27 of Appellant's application are respectfully submitted as clearly allowable for the reasons summarized as follows:

1. Claims 1-5 and 16-27 are not anticipated by nor obvious over the prior art cited by the Examiner taken singly or in combination.

2. Allowance of claims 1-5 and 16-27 are earnestly solicited.

Also, please charge the fee for filing this Appeal Brief in the amount of $500.00 to KODA & ANDROLIA DEPOSIT ACCOUNT NO. 11-1445 and this Appeal Brief is submitted in triplicate.

Please charge any costs incurred by or in order to implement this Appeal Brief or any other additional fees required for any extensions of time in order to enter this Appeal Brief to KODA & ANDROLIA DEPOSIT ACCOUNT NO. 11-1445.

Respectfully submitted,

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_____ 2/21/2006
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CLAIMS APPENDIX

Claim 1 (previously presented): A method of inspecting a coin thrown into a machine, comprising the steps of:

(a) arranging an exciting coil in the vicinity of one side of a coin passage inclined at a predetermined angle so that magnetic poles thereof face the coin passage;

(b) arranging two receiving coils having substantially identical characteristics in the vicinity of said one side of said claim passage to be electromagnetically connected with said exciting coil and electrically connected to a differential amplifier so that the differential amplifier receives a differential input from said receiving coils;

(c) exciting said exciting coil to oscillate at such a frequency that said two receiving coils detect an influence of a reactive magnetic field caused by eddy current induced on a surface of the thrown coin when the coin passes through an electromagnetic field produced by said exciting coil, and issue electromotive force signals representing the influence of said reactive magnetic field as the differential input to said differential amplifier to determine a surface pattern of the thrown coin; and

(d) discriminating authenticity of the thrown coin based on a combination of an output of said differential amplifiers and at least one of amplitude, frequency and phase of an oscillation voltage of said exciting coil.

Claim 2 (previously presented): A method of inspecting a coin according to claim 1, wherein said frequency in said step (c) is preset in accordance with material of the coin to be inspected.

Claim 3 (previously presented): A method of inspecting a coin according to claim 1, wherein said step (d) includes a step of determining material of the thrown coin based on the amplitude of the oscillation voltage of said exciting coil.

Claim 4 (previously presented): A method of inspecting a coin according to claim 1, wherein said step (d) includes the steps of sampling said electromotive force signal in a time period, and performing a statistical process based on the sampled values to determine a feature of the thrown coin.

Claim 5 (original): A method of inspecting a coin according to claim 4, wherein said statistical process includes the steps of obtaining a coefficient of correlation of said sampled values with respect to a reference coin, and discriminating the thrown coin based on magnitude of said correlation coefficient.

Claim 6 (cancelled).

Claim 7 (cancelled).

Claim 8 (cancelled).

Claim 9 (cancelled).

Claim 10 (cancelled).

Claim 11 (cancelled).

Claim 12 (cancelled).

Claim 13 (cancelled):

Claim 14 (cancelled):

Claim 15 (cancelled):

Claim 16 (previously presented): An apparatus for inspecting a coin thrown into a machine, comprising:

an exciting coil arranged in the vicinity of one side of a coin passage inclined at a predetermined angle so that magnetic poles thereof face the coin passage;

two receiving coils having substantially identical characteristics arranged in the vicinity of said one side of said coin passage to be electromagnetically coupled with said exciting coil and electrically connected to a differential amplifier so that the differential amplifier receives a differential input from said two receiving coils;

oscillation means for exciting and oscillating said exciting coil to produce an electromagnetic field at such a frequency that an electromotive force influenced by a reactive magnetic filed caused by eddy current induced on a surface of the thrown coin when the coin passes through the electromagnetic field is produced in said receiving coils and said receiving coils issue electromotive force signals representing the electromotive force as the differential input to said differential amplifier;

first detecting means for detecting at least one of amplitude, frequency and phase of an oscillation voltage of said exciting coil;

second detecting means including said differential amplifier to determine a surface pattern of the thrown coin based on the differential input to said differential amplifier; and

discriminating means for discriminating authenticity of the thrown coin based on a combination of an output of said first detecting means and an output of said second detecting means.

Claim 17 (original): An apparatus for inspecting a coin according to claim 16, wherein said first detecting means includes a first detector circuit for outputting a direct voltage signal corresponding to the oscillation voltage of said exciting coil.

Claim 18 (original): An apparatus for inspecting a coin according to claim 16, wherein said second detecting means comprises a bridge circuit including said two receiving coils, a differential amplifier circuit for amplifying an alternating voltage signal outputted from said bridge circuit and outputting the amplified signal, and a second detector circuit for detecting and rectifying the alternating voltage signal from said differential amplifier circuit and converting the same into a direct voltage signal corresponding to the output of said bridge circuit.

Claim 19 (original): An apparatus for inspecting a coin according to claim 16, wherein said predetermined frequency is set in accordance with material of the coin to be inspected.

Claim 20 (original): An apparatus for inspecting a coin according to claim 16, wherein said discriminating means discriminates material of the thrown coin based on the amplitude of the oscillation voltage of said exciting coil.

Claim 21 (original): An apparatus for inspecting a coin according to claim 16, wherein said exciting coil is arranged at a predetermined distance from said receiving coils so that a line connecting centers of magnetic poles of said exciting coil is substantially parallel with an extending direction of said coin passage, and said two receiving coils are arranged above a coin rail provided with said coin passage so that a line connecting centers of said two receiving coils is substantially parallel with an extending direction of said coin passage.

Claim 22 (original): An apparatus for inspecting a coin according to claim 16, wherein said exciting coil is arranged at a predetermined distance from said receiving coils so that a line connecting centers of magnetic poles of said exciting coil is substantially perpendicular to an extending direction of said coin passage, and said two receiving coils are arranged above a coin rail provided with said coin passage so that a line connecting centers of said two receiving coils is substantially parallel with an extending direction of said coin passage.

Claim 23 (original): An apparatus for inspecting a coin according to claim 16, wherein said exciting coil is arranged at a predetermined distance from said receiving coils so that a line connecting centers of magnetic poles of said exciting coil is substantially parallel with an extending direction of said coin passage, and said two receiving coils are arranged above a coin rail provided with said coin passage so that a line connecting centers of said two receiving coils is substantially perpendicular to an extending direction of said coin passage.

Claim 24 (original): An apparatus for inspecting a coin according to claim 16, wherein said coin passage is formed so that a coin passing therethrough is inclined to said one side of said coin passage where said exciting coil and said receiving coils are arranged.

Claim 25 (previously presented): An apparatus for inspecting a coin according to claim 16, wherein said discriminating means samples said electromotive force signal in a time period, and performs a statistical process based on the sampled values to determine a feature of the thrown coin.

Claim 26 (original): An apparatus for inspecting a coin according to claim 21, wherein said statistical process is performed by obtaining a coefficient of correlation of said sampled values with respect to a reference coin, and discriminating the coin based on magnitude of said correlation coefficient.

Claim 27 (previously presented): An apparatus for inspecting a coin thrown into a machine, comprising:

an exciting coil arranged in the vicinity of one side of a coin passage inclined at a predetermined angle so that two magnetic poles thereof face the coin passage;

two receiving coils having substantially identical characteristics and arranged separately from said exciting coil in the vicinity of said one side of said coin passage so that said receiving coils are electromagnetically coupled with said exciting coil;

oscillation circuit means arranged with said exciting coil as an oscillation element;

first detector circuit means coupled to said oscillation circuit means for detecting at least one of amplitude, phase and frequency of an oscillation voltage in said exciting coil;

bridge circuit means arranged to include said receiving coils;

differential amplifier means connected to said bridge circuit means;

second detector circuit means for detecting an electromotive force signal influenced by a reactive magnetic field caused by eddy currents induced on a surface of the thrown coin an output of said second detector circuit means being connected to said differential amplifier means; and

discriminating means connected to said first and second detector circuit means to discriminate a feature of said thrown coin based upon a combination of an output of said second detector circuit means to determine a surface pattern of the thrown coin and an output of said

first detector circuit means to determine at least one of amplitude, phase and frequency of said oscillation voltage, and output a result of the discrimination.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.